

feet in height, nevertheless these plants produce an abundance of fruit. *Sassafras*, *Pinus Virginiana*, *Quercus Prinus*, *Diospyros* and *Oxydendrum*, all appear in the same form and stature. The common sour gum, *Nyssa sylvatica*, in like condition, exists on King's Mountain, and a single shrub of *Ilex opaca* was found on the uppermost cliffs of Crowder's Mountain.

The normally shrubby plants appear more natural. *Polycodium stamineum*, *Vaccinium vacillans* and *Quercus nana* are common to both peaks, while *Kalmia latifolia*, *Rhododendron Catawbiense*, *Gaylussacia frondosa*, *Gaylussacia resinosa* and *Batodendron arboreum* are species apparently confined to the top of King's Mountain. Only two perennial or shrubby herbs, namely *Galax aphylla* and *Paronychia argyrocoma*, exist on the summit of King's Mountain, while the summit of Crowder's Mountain is destitute of herbaceous vegetation with the exception of a fern and a few sterile plants of some sedge.

A SIMPLE DYNAMOMETER

By H. M. RICHARDS

It is instructive to demonstrate that force is exerted by the swelling of seeds previous to germination, or, for that matter, in the imbibition of water by any substance capable of taking it up. A very simple machine for registering approximately the amount of energy involved, which perhaps may be dignified by the name of a dynamometer, is found in one of the ordinary self-registering letter scales which work by compression. A dish containing the seeds is placed on the pan of the scale, and on top of them is laid a cork, or better a glass plate, which just fits into the glass vessel without binding. The whole is placed on a retort stand and a stick, held firmly by a clamp, is placed against the glass plate. Water is now poured on, and as it runs down among the seeds they swell, and the glass cover being rigid the scale itself is depressed as a result of the pressure. It is needless to say that the weight of the dish, seeds, etc., must first be recorded. In this way an idea of the amount of force exerted by a given weight of

seeds can be obtained. It is not of course very accurate or strictly quantitative, but it is at least approximate, and suitable for comparisons, say between living and dead seeds.

The dials of these scales, as obtained in this country, are graduated in ounces, but it is not difficult to substitute a paste-board dial and regraduate it in grammes by means of weights placed on the scale pans. This is of course preferable. The construction of these scales is so simple that there is no reason why a home-made and weaker spring could not be substituted for the one provided, and in such a manner an apparatus capable of more delicate adjustment could be obtained. With a more sensitive balance the force exerted by the downward growth of the root tip of *Vicia Faba* could be recorded.

THE RARE MOSSES OF BASHBISH FALLS

BY ELIZABETH G. BRITTON

Bashbish Falls may be reached from the Copake station of the Harlem Railroad, by a short walk, and are about one hundred miles from New York City. They are situated in a picturesque ravine with steep walls of rock and wooded slopes surrounding them. Many interesting mosses have been collected in the two expeditions which I have made to this locality, the rarest of which is *Anomobryum concinatum*, this being the third station recorded for this species in the State. *Didymodon riparius* was collected by Mr. Williams in the stream above the Falls and on the wet cliffs were found *Didymodon rubellus*, associated with *Gymnostomum rupestre*, *Amphoridium Lapponicum*, and *Myurella Careyana*, all rare species for this region, but finding congenial moisture and shade in this sheltered ravine. *Homalia Jamesii*, *Porotrichum Allegheniense*, *Pogonatum alpinum* and *Forsströmia trichomitria* growing on wet rocks, were also collected above the Falls, and the slopes on the south side yielded *Hylocomium brevirostre* and *Dicranella heteromalla* with curved pedicels. Fine fruiting specimens of *Bryum proliferum* were also found in the region.